



OPTIMATION, INC.

13035 Saticoy St., North Hollywood, California 91605

PHONE: (213) 983-0877

QUOTATION NUMBER

144

DATE

December 2, 1971

MR. T. NELSON

P. O. BOX 3,

SCHOOLEYS MOUNTAIN, NEW JERSEY 07870

ATTENTION:

REFERENCE: Your Post Card dated
11/28/71 -

Gentlemen:

We are pleased to submit the following quotation:

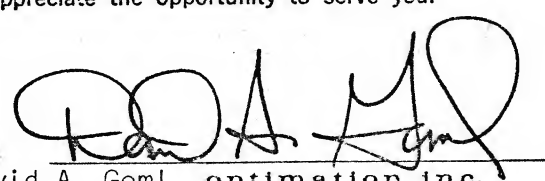
ITEM	QUANTITY	DESCRIPTION	DELIVERY	UNIT PRICE	EXTENSION
1	1	Model CDO-6300 Computer Graphic Display	6 to 8 weeks after re- ceipt of order.	\$4,540.00	\$4,540.00
c.c. SBM Representatives, Union, New Jersey					

F.O.B. North Hollywood, California

Quotation subject to terms on reverse side

TERMS: 1/2% 10 days, Net 30

The above quotation is firm for 30 days. We will
appreciate the opportunity to serve you.


David A. Geml optimation, inc.
Marketing Manager

TERMS OF SALE AND SHIPMENT

PRICES: Prices are f.o.b. shipping point and are subject to change without notice. Price information published in catalogs, bulletins or price lists is not a definite quotation. Such information must be confirmed. Written quotations are valid for 30 days — telephone quotations for 7 days.

TAXES: The amount of any present or future sales taxes or other similar taxes, applicable to any products sold by OPTIMATION shall be paid by the purchaser. Normally, such taxes are not included in our quotation and must be added at time purchase is made and shipping point(s) confirmed.

TERMS: Invoice payment terms to purchaser with satisfactory credit are 1/2% 10 days net 30 days. Delayed shipments, to accommodate the purchaser, will be invoiced and dated the day the company is prepared to ship, unless a specific delivery schedule has been established at the time of purchase.

FREIGHT: All shipments are f.o.b. our plant, North Hollywood, California and are made "best way" in our discretion in lieu of customer instructions to the contrary.

PRODUCT MODIFICATIONS & SUBSTITUTIONS: Optimation reserves the right to change or modify at any time, without notice, any components or materials used in the fabrication of its products, or to discontinue the manufacture of any product.

ACCEPTANCE OF ORDERS: Orders for catalog items and standard parts are subject to acceptance by any of the company's duly authorized representatives and are subject to the company's price, terms and conditions in effect at the time of acceptance. Orders for modifications and non-standard items are subject to acceptance at the main office of Optimation.

DOMESTIC & EXPORT PACKING: Prices include the costs of standard domestic packing only. Any deviation from this standard packing (domestic or export), including U.S. Government or MIL Spec packaging, necessitates extra charges. To determine such extra charges, consult the factory.

DELIVERY. Delivery information is approximate. It refers to the time of delivery to carrier and is made in good faith. Delivery schedules, although scrupulously adhered to in all matters subject to Optimation control, are not guaranteed and Optimation will not accept liability or any penalty or damages for delayed shipments.

TITLE TO MERCHANDISE: Title to merchandise passes to the consignee upon delivery thereof to the carrier at the shipping point.

DAMAGED OR LOST SHIPMENTS: All merchandise is carefully packed and meets all its specifications when shipped. Optimation assumes no responsibility for damage after delivery to carrier at shipping point. All claims for loss, damage and delay in transit are to be transacted by the consignee directly with the carrier. Optimation will reasonably assist the consignee in securing satisfactory adjustment of any claim with the carrier.

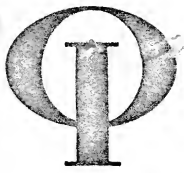
CANCELLATION OF ORDERS: After acceptance, orders cannot be cancelled without Optimation's written consent and then only upon terms that will compensate for engineering or fabrication charges already incurred and any other securing satisfactory adjustment of any claims with the carrier.

MATERIAL RETURNED FOR CREDIT: In no case will merchandise be accepted for return and credit unless permission to return has first been obtained. Only merchandise of current manufacture will be considered for return. If permission to return any merchandise is granted, the amount of credit will be governed by the facts in each case. Special products fabricated to order are not returnable.

ERRORS: All stenographic, clerical or other errors are subject to correction.

GUARANTEE: Optimation, Inc. guarantees all products manufactured and sold by it against defective material and workmanship for a period of one year from date of shipment, provided purchaser shall have reasonably inspected products received and notified Optimation of any apparent defects discovered within 15 days of receipt of shipment. Obligation under this warranty is limited to repair or replacement by Optimation at its plant or one of its authorized service stations, of any of our products which Optimation determines to be defective or not in accord with stated specifications. Optimation will not assume liability for any unauthorized repairs or modifications to its products or materials, even though defective or not in accord with the specifications. Vacuum tubes, semiconductors, batteries, and fuses are specifically excluded from this warranty. No liability will be accepted for any damages to customer's materials and equipment due to the use or misuse of Optimation products, nor for any loss of profits or other special damages.

MODIFYING OR CONFLICTING TERMS: We accept all orders with the understanding that the terms and conditions stated above are agreeable to the buyer. Our quotations are based on adherence to these terms and conditions, and are designed to give the buyer the best possible service in delivery and economy. We cannot, therefore, be bound by terms and conditions in variance with the above, unless expressly agreed in writing by an officer of the company.



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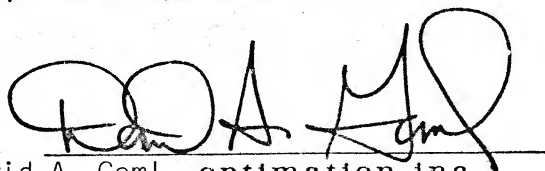
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Optimation's new Model CDO-6300 introduces an entirely new concept in the design of high speed computer graphic displays. By offering improved performance of the major deflection inputs the CDO-6300 eliminates the need for a redundant minor deflection system (and yoke) which means lower cost, fewer parts and higher reliability.

The unique X and Y deflection amplifiers used in the CDO-6300 have considerably advanced the state-of-the-art when it comes to small signal bandwidth and settling time. Character strokes can be written in less than 250 nanoseconds with a display quality that cannot be distinguished from a dual deflection system which requires two amplifiers for each axis, a regular yoke and a high frequency yoke. Large step jump-settle time to one spot diameter for the CDO-6300 is less than 6 microseconds for a full 10 inch beam excursion. This exceptional performance makes it possible for the first time to write widely spaced characters, characters of any size or even a complete line of information at a linear writing rate of 800 nanoseconds per inch with a single deflection input.

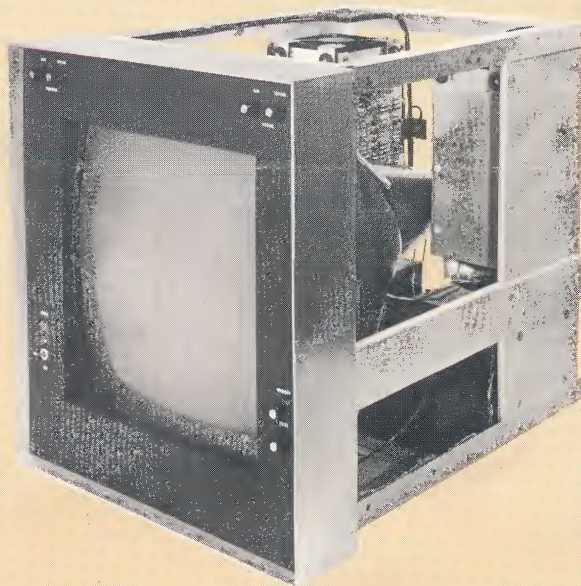
Compatibility with existing display systems is maintained by providing two separate inputs for each axis which correspond to the major and minor inputs of dual deflection displays. Either or both deflection inputs may be used depending on the application.

Another important feature is complete isolation between the X and Y deflection systems which virtually eliminates all effects of cross coupling. This feature also eliminates any phase shift between the two axis. With present dual yoke deflection systems cross coupling between the minor and major yokes can cause severe distortion of characters when they are written in the corners (i.e. maximum deflection of both axis).

The versatile open frame packaging of the CDO-6300 provides for a wide range of mechanical configurations that will fit most applications, including a remote-view CRT. Standard packaging available is the open frame chassis for relay rack mounting, with slides or a cabinet enclosure for console use.

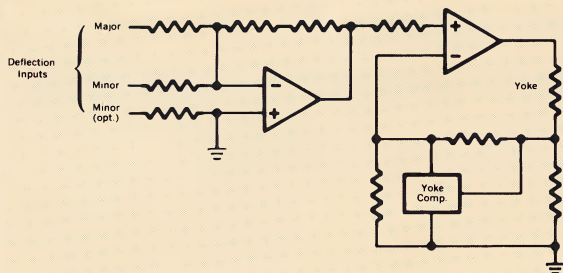
CDO-6300 HIGH SPEED COMPUTER GRAPHIC DISPLAY

- * 250 Nanoseconds Stroke Writing Time
- * 6 Microseconds Jump-Settle Time for a 10" Step
- * 800 Nanoseconds/Inch Linear Writing Rate
- * 0.015" Spot Size
- * DC to 20 MHz Bandwidth Video Amplifier
- * Rotational and Translational Displays Made Possible by Single High Speed Deflection Input for Each Axis

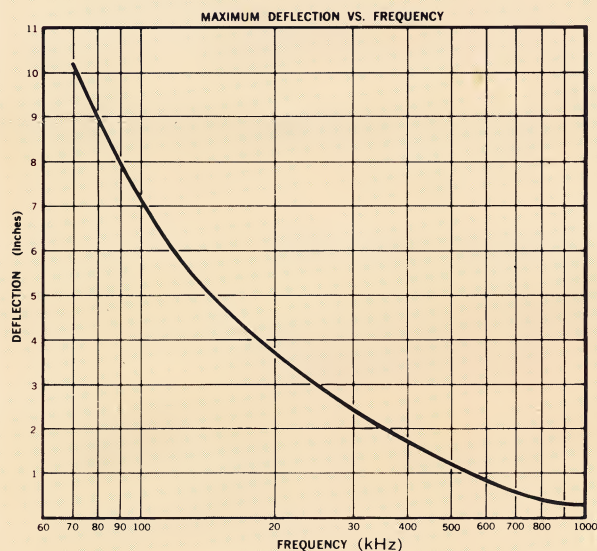


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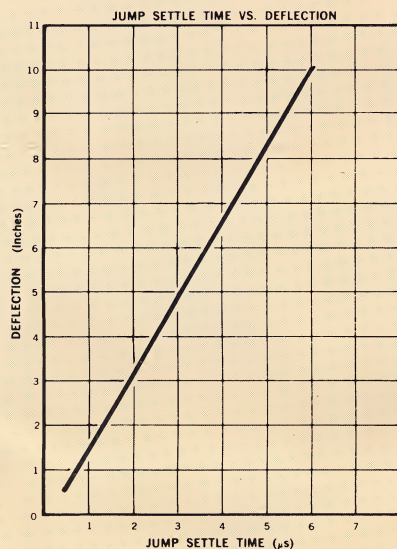
9421 Telfair Avenue, Sun Valley, Calif. 91352 • (213) 768-0830



Unique design of CDO-6300 permits use of either or both high speed deflection inputs. Simple resistor changes determine the sensitivity of each input for unlimited versatility. Optional minor deflection input can be provided for phase inversion.



Above graph shows the exceptionally wide bandwidth of the deflection amplifiers in the CDO-6300. This performance makes it possible to write high speed vectors and characters using the same deflection input.



Typical jump-settle time of the CDO-6300 is 7 microseconds for a full 12" beam excursion (17 inches diagonally). Character stroke writing time is limited only by the deflection amplifier rise time which is better than 250 nanoseconds.

SPECIFICATIONS

GENERAL

Large Step	
Jump-Settle Time	6 microseconds for a 10" beam excursion. 7 microseconds for a 12" beam excursion.
Small Step Rise Time	Less than 250 nanoseconds
Maximum Linear	
Writing Rate	800 nanoseconds/inch
Spot Size	0.015"
Resolution	100 lines/inch
Focus	Electrostatic
Deflection	Magnetic
Phosphor	Aluminized P31 (other phosphor types available)
Drift	±0.25%/24 hours (with 10 min. warm up)
Spot Motion and Jitter	0.05% P-P
Linearity	±1% dynamic ±0.25% static,
CRT Type	Rectangular

GEOMETRIC DISTORTION

Pincushioning	Less than ±1% deviation from ideal square
Symmetry	Less than ±0.5%
Orthogonality	Less than ±0.5%
Hysteresis	Less than 0.2%

DEFLECTION AMPLIFIERS (X AND Y)

Major Input	DC coupled, single ended. 4K impedance
Sensitivity	0.5 volts/inch standard or as specified
Minor Input	DC coupled, single ended. 75 ohms nominal
Sensitivity	1 volt/0.5 inch standard or as specified
Drift	Less than 1% of full scale deflection after 30 minute warm up
Phase Shift	Line separation is imperceptible over the entire maximum deflection vs frequency curve

Z AXIS AMPLIFIER

Type	Linear
Input	Single ended, 75 ohms nominal
Digital Input	+4 volts unblanks beam, enabling the analog input
Analog Input	±2 volts for full intensity control
Bandwidth	DC to 20 MHz
Rise Time	25 nanoseconds

POWER REQUIREMENTS

Input	105 to 125 volts AC, 50 to 400 Hz. May be connected for 220 volts AC
Power Consumption	900 watts

MECHANICAL REQUIREMENTS

Dimensions	Height 21", width 19", depth 21"
Mounting	Open frame construction for rack mounting. Slide and cabinet mounting also available.